FINAL DRAFT

VISION FOR HOOD CANAL

HOOD CANAL INTEGRATED WATERSHED PLAN

SCOPE OF WORK

January 20, 2010

FINAL DRAFT

I. Introduction

The Hood Canal Coordinating Council (HCCC) is a watershed-based "Council of Governments," formed as an interlocal agency under Chapter 39.34 RCW, to coordinate the activities of federal, state, tribal and local governments with jurisdiction over land and resource management in the Hood Canal watershed. The HCCC is developing an integrated watershed plan for Hood Canal. The purpose for the integrated watershed plan is to provide a comprehensive, coordinated strategy for protecting and restoring the Hood Canal watershed. The Hood Canal integrated watershed plan is designed to address the HCCC's strategic objectives as described in the HCCC Strategic Plan and to implement the Puget Sound Partnership's *Puget Sound Action Agenda* for the Hood Canal watershed.[1] This Scope of Work describes how the Council will approach the development of the integrated watershed plan.

The HCCC adopted the *Hood Canal Watershed Strategic Plan* in January 2009,[2] which includes the following mission statement:

> *The Hood Canal Coordinating Council, working with partners, community groups and citizens, will advocate for and implement regionally and locally appropriate actions to protect and enhance Hood Canal's environmental and economic health.*

To implement the mission HCCC also adopted the following strategic objectives:

- The HCCC will create and support an integrated system and structure involving all interests of Hood Canal to coordinate and prioritize regional planning, implementation, and reporting.
- The HCCC is committed to improve and support the forum and processes necessary to protect intact ecosystem processes, structures, and functions that will sustain Hood Canal into the future.
- The HCCC is committed to improve and support the forum and processes necessary to restore ecosystem processes, structures, and functions that will sustain Hood Canal into the future.
- The HCCC is committed to improve and support the forum and processes necessary to reduce the sources of pollution in Hood Canal.

[1] see Puget Sound Partnership's Action Agenda for Puget Sound (updated May 2009).

[2] see HCCC's Hood Canal Watershed Strategic Plan (January 21, 2009).

The HCCC recognizes that much work and a variety of planning efforts and programs have been initiated and are in progress throughout the Hood Canal watershed by the Hood Canal community. Together the various plans and programs provide a comprehensive approach to address environmental and socioeconomic issues inherent in Hood Canal. With this recognition the Council believes that integrating these various efforts and initiatives is necessary. Such integration will allow all issues and conditions facing the watershed to be brought into a context that can describe the relative connection between the issues and topics and the synergy among our activities. By using this integrated watershed planning approach the HCCC and its partners believe we have a greater likelihood of achieving our shared vision for the watershed and its desired future conditions.

The HCCC's overarching goal for the Hood Canal Integrated Watershed Plan is to achieve our shared vision and desired future conditions for the Hood Canal watershed as defined in the Plan and as indicated by the selected targets.

The integrated plan is an organizational concept for integrating existing plans and programs, as well as identified gaps, through a strategic planning framework[3] in order to meet the stated goal. The framework will include the following elements:

- A **public involvement strategy** that harnesses the knowledge and potential of the general public to shape and implement the Integrated Watershed Management Plan.
- An **inventory** of existing plans and programs, yielding a shared vision and a priority set of targets to focus conservation and restoration actions.
- A **watershed assessment** that analyzes key ecological attributes of, threats to and viability of priority targets; develops result chains or logic models for priority targets and strategies; develops biological and socioeconomic objectives for those strategies; develops indicators for measuring progress; finalizes the desired future conditions; and develops the adaptive management plan.
- A **management plan** will be compiled from the work described above to operationalize public involvement, corrective actions, decision-making, monitoring, and funding.

II. Public Involvement Strategy

The goal of this Public Involvement Strategy is to conduct a Hood Canal watershed-wide public outreach effort that will lead to citizen's being engaged and involved in development of the integrated plan and implementation of subsequent actions. The intent of this strategy is to capture and strengthen the voice of Hood Canal's citizens and to further cultivate partnerships that will be critical for achieving the shared vision. The strategy will result in a public involvement plan that will be incorporated into the management plan.

HCCC, the Hood Canal Watershed Education Network, and ECONET[4] members are currently developing a scope of work for the Public Involvement Strategy and will begin full-scale implementation in February 2010. It is currently envisioned that the Strategy will involve several phases of communications organized around plan purpose and vision; plan targets, strategies

[3] HCCC intends to utilize portions of the Puget Sound Partnership's approach for using the *Open Standards for the Practice of Conservation* (Conservation Measures Partnership, 2007) in the development of this framework.

[4] ECONET is the Education, Communication and Outreach Network and part of the Puget Sound Partnership's communications and outreach program.

and actions; and implementation. Communications will focus on reaching all levels of the public, including elected officials, organizations, and the general citizenry.

III. Inventory of Plans and Programs

A. Existing Plans and Programs

Broadly, the inventory will summarize and assess the current management strategies and ongoing and recently completed restoration and protection projects, plans and programs. The inventory will compile management goals and objectives from existing management plans and programs and will catalog measures to accomplish the stated goals and objectives. The inventory will be used to translate these materials into a conceptual model of targets, direct threats, indirect threats and strategies. Additional information will be compiled from the watershed inventory, including monitoring and adaptive management plans.

A number of management plans and implementation strategies exist for the Hood Canal watershed. They include regional plans such as the Puget Sound Partnership Action Agenda, the National Forest Service's Northwest Forest Plan, and the Washington Department of Natural Resources' State Trust Lands Habitat Conservation Plan. They also include Endangered Species Act Puget Sound Chinook and Hood Canal Summer Chum Salmon Recovery Plans. Significant local plans and programs include County land use and water pollution control programs, and watershed management plans prepared by local watershed planning groups. A preliminary list of significant plans and programs that will be included in the inventory is included as Appendix C. A preliminary list of organizations that are or recently have been working in the Hood Canal watershed is included as Appendix D. Their activities also will be included in the inventory**.**

B. Scope of Integrated Watershed Management Plan

The Integrated Watershed Management Plan's scope defines broad parameters related to what the project will affect, including both resources and geographic area. In a general sense, the scope of the plan is the ecosystems, communities, and economies within the watersheds of Hood Canal and the Eastern Strait of Juan de Fuca.

C. Vision and Draft Desired Future Conditions

The plan will include a vision statement that describes land, resource, and socioeconomic conditions expected to result from implementing the Integrated Watershed Plan. The vision is critical for defining long-term success and unifying stakeholders and partners. It will be relatively general, visionary, and brief, and fit within the overall mission of the organizations involved. The vision will be derived from the watershed inventory of existing plans, policies and programs, focusing on integrating both the bottom-up processes such as E3 (Education, Environment, and Economy) and top-down processes such as the Puget Sound Partnership legislative mandates.

In addition to the vision, there will be a qualitative statement of desired future conditions. Combined, the vision statement and desired future conditions will reflect the policies, legal requirements and local needs, given the ecological realities of the Hood Canal watershed. Desired future conditions will be stated as a set of hypotheses to be tested. In a general sense, this is the proposition that ecosystem function throughout the Hood Canal watershed can be protected and restored, and water pollution reduced, while at the same time accommodating expected future population growth. More specifically, the desired future condition will describe

healthy habitat and life histories of target populations and other habitat and socioeconomic conditions.

The vision and desired future conditions guide the choice of targets and, in turn, the watershed assessment. Strategies selected and actions taken to implement the plan will be consistent with and designed to achieve the vision.

D. Targets

Targets are the ecological and socioeconomic items of interest that represent and encompass the full suite of diversity identified in the project scope and vision statement. Ecological targets are specific species, ecological systems/habitats, or ecological processes such as shellfish, freshwater wetlands, or hydrology, respectively. Socioeconomic targets are human and economic values such as community wellbeing and quality of life. Targets are the bases for setting goals, carrying out actions, and measuring effectiveness. A complete suite of targets will, in theory, ensure that the entire scope of the vision statement will be attained. Figure 1 shows the relationship between project scope, the vision statement, and selected targets.

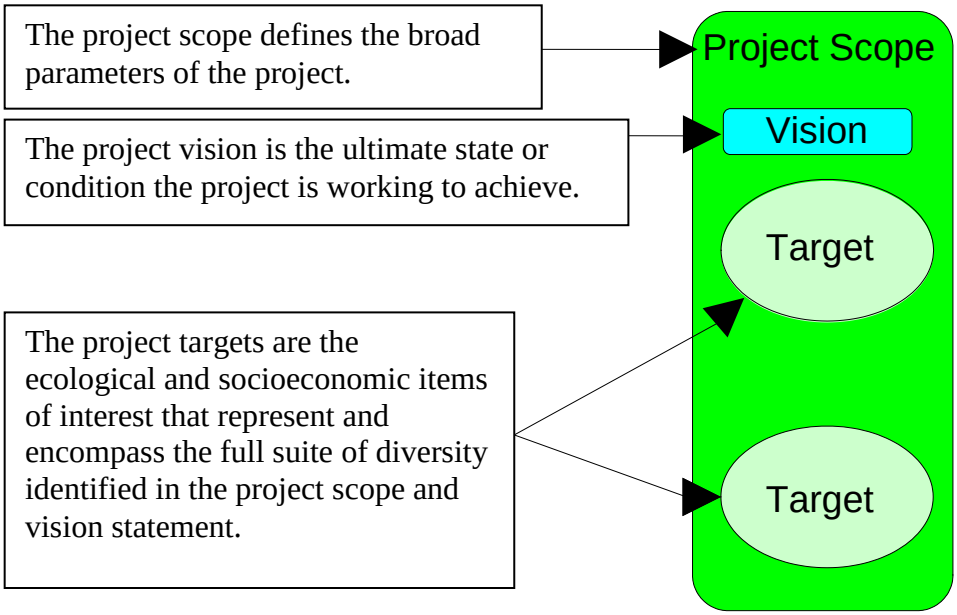

Figure 1. Relationship of Project Scope, Vision, and Targets. Credit Foundations of Success.

Most programs can be reasonably well defined by eight or fewer targets, though more complex efforts and ecosystems may require more. The watershed inventory will identify and compile the suite of targets already being conserved by the plans, policies, and programs in operation currently. The inventory will begin to compile what is known of the current status of each target and the relative health of that target to both its historic and potential future health.

Stakeholders will assess the range of targets, guided by a pre-determined set of criteria and ensure they are comprehensive and encompassing of the vision. This will result in a recommended set of priority targets for the Integrated Watershed Management Plan to focus on initially. This selection of priority or focal targets is the first stage of prioritization in the proposed

strategic planning framework. Specific attention should be paid to documenting why these targets were chosen to both ensure transparency and to document assumptions made in determining targets are comprehensive and appropriate. The public involvement plan will seek to describe the draft priority targets to each level of the public (i.e. elected officials, project sponsors and partners, service organizations, and the general public) and incorporate feedback in order to finalize priority targets for this effort. Descriptions of the focal targets will also highlight additional sub-targets that are captured by protection and restoration of the focal targets.

E. Gap Analysis

The inventory will begin to compare existing activities with the assessment process and outcomes to identify the gaps between actions already identified and/or taken and actions that are needed to achieve the vision. The gap analysis will also identify gaps in our knowledge and the additional research and studies needed to achieve the stated objectives. Gap analysis will begin in the Inventory phase but will be primarily conducted in the Watershed Assessment phase (see section IV).

IV. Hood Canal Watershed Assessment

The Hood Canal Watershed Assessment is the element of the strategic planning framework that will provide the policy and technical foundation for the Hood Canal integrated watershed management plan. The HCCC will conduct this assessment utilizing, where appropriate, methodology described in *Open Standards for the Practice of Conservation* (Conservation Measures Partnership, 2007). This *Open Standards* methodology will be the organizing format for incorporating multiple technical assessments already completed or underway for a variety of resource management issues within the watershed such as the Hood Canal Dissolved Oxygen Program, water resources and salmon recovery. As prescribed by the Puget Sound Partnership's Action Agenda, the HCCC will use the watershed assessment to develop and prioritize protection and restoration strategies. Development of the Hood Canal Watershed Assessment will include the sub elements; viability assessment, threats assessment and situation analysis, results chains, desired future conditions, and adaptive management.

A. Viability Assessment

A viability assessment defines the most important ecological requirements of a healthy target, identifies the current health of a target and its acceptable range of variation, guides determination of appropriate and measurable goals for desired future health of priority targets, and sets the foundation for development of a monitoring and adaptive management plan. The outcome of a well-documented viability assessment is an objective method for determining changes in the status and health of ecological and socioeconomic targets and indicators over time. Prioritization steps further guides recommendations in the integrated watershed management plan by identifying the most significant system threats on which to focus near and medium-term actions.

Once priority targets have been defined, the next step is to identify key ecological or socioeconomic attributes that, if missing or altered, would lead to the reduction in that target's viability or integrity over time. Targets will have at least one, though probably many more than one, key attribute. For example, if the target is seabirds, an attribute is the size of the

population of frigate birds. Critical ecological processes, such as water quality or hydrological function, are also captured as key attributes.

Each key attribute should have at least one indicator. Indicators are a measurable entity related to a specific information need such as the status of key attributes. Building on the example above, the number of breeding pairs of frigate birds is an indicator of the size of the population of frigate birds.

A planning team will be established to evaluate each potential indicator based on criteria recommended by the National Research Council, the principal operating agency of the National Academy of Sciences.[5] Indicators must be used and useful to scientists, policy makers and the public. Consequently, their selection should be based on explicit criteria to ensure consistency and widespread acceptance.[6] To the fullest extent practicable, the HCCC will incorporate into the watershed assessment indicators for which data has been or is being collected by others. These others include, but are not necessarily limited to the Hood Canal Dissolved Oxygen Program, the Washington Department of Fish and Wildlife, the Hood Canal tribes, the Washington Department Health, and the watershed planning groups.[7]

Once indicators are selected, a two-step process begins (Figure 2), the first of which is to define the range of variation in the health of an indicator. This range of variation for each indicator will be categorized as poor, fair, good, or very good, establishing a threshold value between fair and good. Second, the current status of the indicator will be compared to the desired future status. Desired future status is set by a policy decision, based on technical information and recommendations.

Eventually, indicators must be selected and monitored for not only targets, but also status of identified threats as well as effectiveness of identified strategies.

[5] National Research Council, Ecological Indicators for the Nation 52-58 (2000).

[6] National Research Council, Ecological Indicators for the Nation 51 (2000). The selection criteria are described in Appendix A.

[7] A list of potential indicators is included as Appendix B.

Viability Analysis
The Details

Poor:	Fair:	Good:	Very Good:
Restoration increasingly difficult; May result in extirpation	Outside acceptable range of variation; Requires human intervention	Indicator w/in acceptable range of variation; Some intervention required for maintenance	Ecologically desirable status; Requires little intervention for maintenance

				Indicator Ratings			
Target	**Category**	**KEA**	**Indicator**	**Poor**	**Fair**	**Good**	**Very Good**
Seabirds	Size	Population size of frigatebirds	Breeding pairs of frigatebirds	< 300	301 – 500	501 – 1,000	> 1,000

Threshold line

Viability Analysis
The Details

3) Define your current state and your desired future state for your target

				Indicator Ratings			
Target	**Category**	**KEA**	**Indicator**	**Poor**	**Fair**	**Good**	**Very Good**
Seabirds	Size	Population size of frigatebirds	Breeding pairs of frigatebirds	< 300	301 – 500	501 – 1,000	> 1,000
			Current Status			550	
			Desired Future Status			800	

Figure 2. Figures represent two-step process in Viability Analysis of first defining Indicator Ratings and second defining Indicator Current and Desired Future Status. Credit Foundations of Success.

B. Threats Assessment and Situation Analysis

Direct and indirect threats associated with each target will be identified. Direct threats directly influence the efficacy of the targets, and can be either human activities such as water pollution or natural phenomenon such as paralytic shellfish poisoning. Direct threats can also be natural phenomenon whose impacts are increased by human activities. Threats will need to be prioritized as to their relative impact on each target. Characteristics important in this analysis will include extent, severity, permanence, and urgency.

Indirect threats are the root causes or drivers of the direct threats affecting targets. Additional factors to consider in the situation analysis would include enabling conditions or opportunities.

A situation analysis is a description of the context within which the priority targets function. It will provide a common understanding of the ecological and socioeconomic systems that affect (positively and negatively) the key targets. The situation analysis can be documented in a transparent fashion and visually described using a conceptual model. The situation analysis documents relationships and assumptions and will provide greater certainty towards meeting goals and objectives, as well as where it could be determined subsequently that weaknesses in the watershed assessment occurred, allowing partners to adaptively manage over time.

Specifically, the situation analysis will further explore direct threats, indirect threats, and enabling conditions that negatively affect the identified targets. Strategies for improving target conditions should also be included. Figure 3 shows the relationship between targets, threats, and strategies.

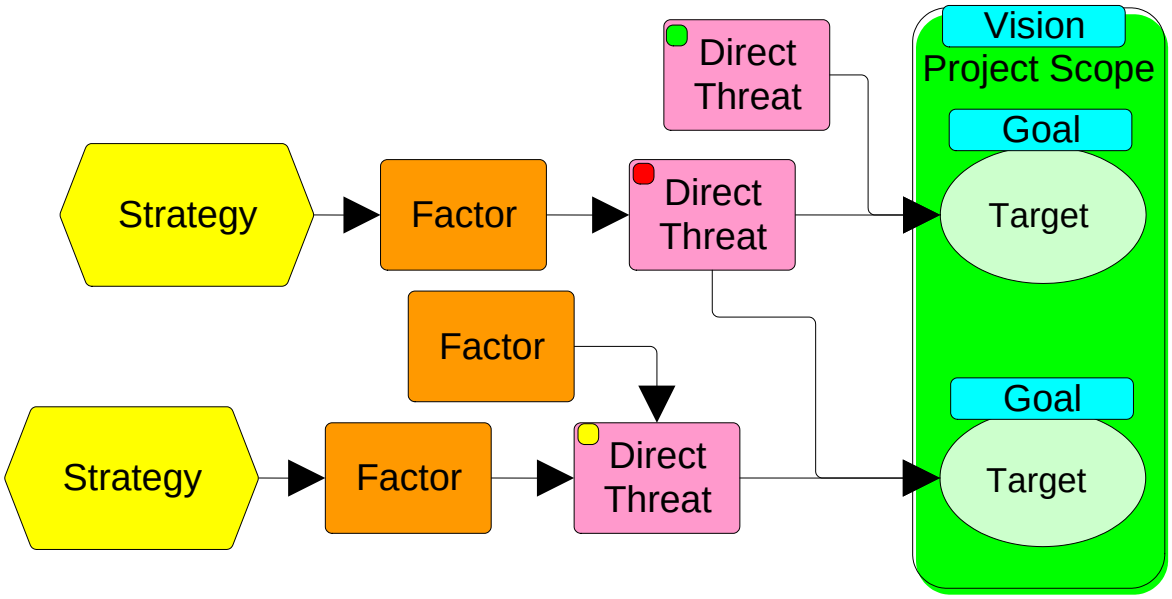

Figure 3. Schematic of components of Situation Analysis. Credit Foundations of Success.

Strategies are the larger scale approaches, or suites of activities, needed to counteract negative factors such as direct threats, indirect threats, historic threats and enabling conditions. Most strategies will have already been identified in the watershed inventory, but completing the viability assessment, threat assessment and situation analysis will enable the watershed assessment teams to ensure that each threat factor has been addressed, essentially completing another component of the gap analysis. Strategies should consider their likelihood of success, cost, feasibility, and relationship to other strategies. For example, if estuaries are a target and estuarine landfill reducing size and connectivity of habitats is a threat, a strategy is to restore estuarine wetlands by removing landfill.

C. Results Chains

Results chains are developed next to graphically describe the key assumptions of how strategies will impact the targets. A results chain is a tool that shows how a particular action will lead to some desired result, explicitly documenting hypotheses and assumptions. Results chains diagram a series of statements in an "if…then" fashion. There are three basic components of a results chain, including the strategy, expected outcomes, and desired impact. Using these components, objectives and goals can be defined that describe the desired future state of outcomes and impacts. In these terms, a goal is a formal statement of the desired ultimate impact on the target. An objective is a formal statement of the desired outcome intended over the short or medium-term, usually associated with the result of a strategy addressing a threat. Objectives are necessary results needed to attain goals and thus conserve targets and attain the vision. A good objective meets the criteria of being results-oriented, measurable, time-limited, specific, and practical. Figure 4 represents the relationship between the 3 basic components of results chains outlined above and their relationship to objectives and goals.

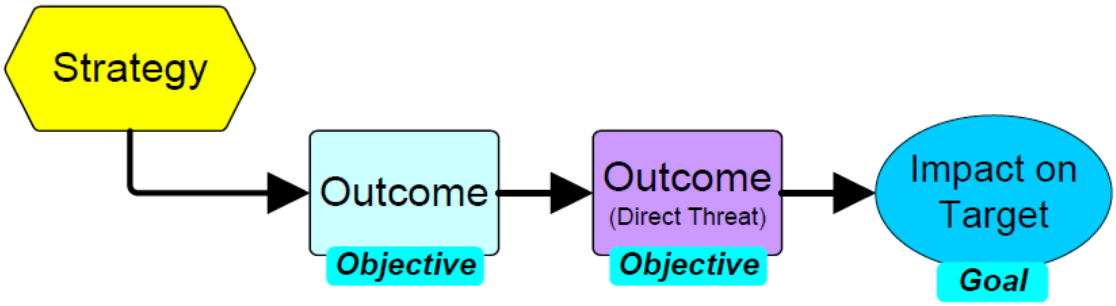

Figure 4. Schematic of Results Chain showing relationship between Strategy, Outcomes, and Target. Objectives are met with Outcomes and Goals are approached by Impacting Targets. Credit Foundations of Success.

D. Finalize Desired Future Conditions

Once the viability assessment, threat assessment, situation analysis and results chains have been completed the project will be able to return to the preliminary desired future conditions and fine-tune them as appropriate.

E. Adaptive Management Plan

Adaptive management applies the scientific method to the design and implementation of natural resource and environmental policies. Adaptive management emphasizes experimental intervention into an ecosystem to provide insights into how it works and changes. An adaptive policy is designed from the outset to test clearly formulated and documented hypotheses about the behavior of an ecosystem being changed by human intervention. Management actions are purposefully designed to obtain statistically valid results, enabling managers to monitor and evaluate the effects of management actions and to modify their actions in response to new information. Adaptive management is the conscious decision in favor of *action* designed to increase understanding as opposed to *inaction* in the face of uncertainty.

The preceding strategic planning framework is itself an adaptive management plan, in that it documents objectives, goals, hypothesized relationships and outcomes, assumptions, and metrics for measuring progress. This "content" will be documented in the integrated watershed management plan along with the development of an actionable, specific, monitoring plan.

The last component of an adaptive management plan that needs additional development will be the decision-making process to determine at what point, or trigger, it would be recognized if Hood Canal is not meeting its objectives and goals. As actions are taken and information is collected it must be decided whether to stay the course or adapt our strategies to improve our effectiveness.

V. Integrated Watershed Management Plan

The integrated watershed management plan will document the materials compiled and developed by the watershed inventory and the watershed assessment into one set of publications that lay the context for ecosystem based management in Hood Canal. These

results will then be operationalized by describing a prioritized implementation schedule of when activities will be completed and by whom, how they will be tracked for effectiveness and accountability, how they could be funded, and how it will be reported. The integrated watershed management plan will also develop research and monitoring that will complement the adaptive management plan developed by the watershed assessment.

A. Watershed Overview

The watershed inventory and assessment will provide background needed to incorporate an overview of historic and current conditions in the Hood Canal watershed, including a general description of environmental and socioeconomic conditions and human-caused and natural disturbances to the ecosystem.

The overview will catalog significant fish, wildlife and plant species and describe their status and population trends. The overview will include an analysis of the functional relationship between selected fish and wildlife species and between significant ecological processes. The assessment will identify both positive and negative relationships.

The overview will characterize significant economic activities and trends. Finally, the overview will describe environmental factors outside the Hood Canal watershed that explain the significance of the watershed in its regional context.

B. Implementation Schedule

An important phase of the integrated watershed management plan will be compiling existing or creating a new implementation framework that outlines timing and sequencing of priority activities and who may be the most efficient and effective agent for completing them. These activities and the strategies they implement will have been identified in the watershed assessment, though sequencing and prioritization will need additional attention. Implementation will require governance structures for ensuring actions are consistent with the management plan.

1. Prioritization Framework

Priorities are developed in the watershed assessment by prioritizing targets and threats. Additional priorities may need to be established through an enhanced “prioritization framework,” including criteria, considerations and procedures designed to develop and prioritize proposed actions in future project selection processes consistent with the assessment and related strategies. To the extent possible, the prioritization framework will incorporate and build on existing prioritization processes.

2. Implementation Activities

Implementation activities are specific actions to achieve the vision and outputs/outcomes outlined in the watershed assessment. The integrated watershed management plan will compile activities proposed in various plans and programs identified through the watershed inventory as well as those developed and supported by the watershed assessment. The management plan will describe a process for considering additional implementation activities during periodic updates of the management plan and as decisions are made in the adaptive management framework. Implementation activities will need to be specific enough to ensure that on-the-ground implementation achieves the stated objectives.

3. Governance

The HCCC includes all local governments with primary land use and regulatory authority in the Hood Canal watershed.[8] The management plan will include recommendations for how the HCCC's members can – to the extent otherwise allowed by law – exercise their primary governmental authorities in a manner consistent with the management plan. The HCCC cannot require state or federal agency consistency with the management plan. Nevertheless, the plan may include recommendations for actions by federal and state agencies.

Several other government agencies and nongovernmental organizations also act to protect and restore the Hood Canal watershed. Their participation is critical for a sustained, coordinated effort to implement the plan and thus the plan may include measures to coordinate the activities of action organizations. Furthermore, the management plan will include recommendations to engage action organizations in decision-making to implement the plan, consistent with the primary governmental responsibilities of the HCCC members.

C. Research and Monitoring

1. Research

The integrated watershed management plan will identify research needs throughout the watershed. The process will identify critical uncertainties or gaps in our knowledge and understanding of Hood Canal biological and socioeconomic systems that are important in ensuring our ability to achieve the vision. Development of the plan will involve working with existing and ongoing research activities including the Hood Canal Dissolved Oxygen Program.

2. Monitoring

The integrated watershed plan will describe a monitoring program focused on restoration, protection, reduction of pollutants, etc. This program will encompass several categories of activities:

- **Status and trend monitoring** characterizes conditions at any given time and tracks how conditions change over time.
- **Implementation monitoring** identifies whether a project was completed as planned.
- **Effectiveness monitoring** determines if actions had the intended effects.
- **Validation monitoring** determines whether any hypothesized cause and effect relationships were correct.

The monitoring program builds on existing monitoring activities currently being implemented by action organizations within the Hood Canal watershed, including the Hood Canal Dissolved Oxygen Program, Watershed Planning Unit's water quantity programs, multiple water quantity programs, the HCCC's Lead Entity Program for salmonid habitat restoration and protection, and Co-manager and NOAA Fisheries monitoring of fisheries and salmon recovery efforts.

The monitoring program must determine priorities given limited resources, document standard protocols and metrics, identify timelines and responsible parties, and establish common data procedures and databases.

[8] The City of Port Townsend is not at this point a member of the HCCC.

D. Funding

The HCCC will use the integrated management plan as a basis for funding recommendations to counties, tribes, state agencies and ultimately to Congress and the State Legislature. The management plan will include recommendations on a budget process to guide implementation funding and ensure resources are available and going to the highest priority activities.

F. Reporting

Early each year the HCCC will prepare a "report card" or Annual Review documenting the progress or lack thereof in implementing the watershed management plan, consistent with the state of knowledge and information available at that point in time. This Annual Review will also recommend adaptive measures for the following year.